

concentration n the range of $1 \times 10^{18} \text{ cm}^{-3}$ to $1 \times 10^{21} \text{ cm}^{-3}$ for improvement in the laser threshold value.--.

Page 10, replace the paragraph, beginning on line 1, as follows:

--The present invention provides a nitride based semiconductor photo-luminescent device having an active layer having a quantum well structure, the active layer having both at least a high dislocation density region and at least a low dislocation density region lower in dislocation density than the high dislocation density region, wherein the low dislocation density region includes a current injection region into which a current is injected, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration.--.

Page 11, replace the paragraph, beginning on line 6, as follows:

--The present invention found out the extremely important and unexpected facts that if the active layer of the nitride based semiconductor laser device formed over the facet-initiated epitaxial lateral overgrowth gallium nitride substrate is undoped, then a low threshold value is obtained and a longer life-time is also obtained.--.

Page 11, replace the paragraph, beginning on line 24, bridging pages 11 and 12, as follows:

--The first semiconductor photo-luminescent device is formed over the facet-initiated epitaxial lateral overgrowth

substrate and has the Si-undoped quantum well active layer. The second semiconductor photo-luminescent device is formed over the facet-initiated epitaxial lateral overgrowth substrate and has the Si-doped quantum well active layer having a low Si-impurity concentration of $1 \times 10^{18} \text{ cm}^{-3}$. The third semiconductor photo-luminescent device is formed over the facet-initiated epitaxial lateral overgrowth substrate and has the Si-doped quantum well active layer having a high Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$. The fourth semiconductor photo-luminescent device is formed over the epitaxial lateral overgrowth substrate and has the Si-undoped quantum well active layer. The fifth semiconductor photo-luminescent device is formed over the epitaxial lateral overgrowth substrate and has the Si-doped quantum well active layer having a low Si-impurity concentration of $1 \times 10^{18} \text{ cm}^{-3}$. The sixth semiconductor photo-luminescent device is formed over the epitaxial lateral overgrowth substrate and has the Si-doped quantum well active layer having a high Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$.--.

Page 14, replace lines 3 and 4 as follows:

--The second device: facet-initiated epitaxial lateral overgrowth; and

Si-doped quantum well active layer of $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace lines 5 and 6 as follows:

--The third device: facet-initiated epitaxial lateral overgrowth; and

Si-doped quantum well active layer of $5 \times 10^{18} \text{ cm}^{-3}$.--;

replace lines 9 and 10 as follows:

--The fifth device: epitaxial lateral overgrowth; and

Si-doped quantum well active layer of $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace lines 11 and 12 as follows:

--The sixth device: epitaxial lateral overgrowth; and

Si-doped quantum well active layer of $5 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 14,

bridging pages 14 and 15, as follows:

--There is no large different in the initial threshold current density in the first to sixth nitride-based semiconductor laser emitting devices. In the first and second nitride-based semiconductor laser emitting devices grown over the facet-initiated epitaxial lateral overgrowth substrates and having the Si-undoped active layer and the Si-doped active layer of $1 \times 10^{18} \text{ cm}^{-3}$, the initial threshold current densities are slightly lower than the remaining initial threshold current densities of the third to sixth nitride-based semiconductor laser emitting devices, even the Si-impurity concentrations are lower than $1 \times 10^{19} \text{ cm}^{-3}$. This means that the initial threshold current density has no large dependency upon the Si-impurity concentration. In the first to third nitride-based semiconductor laser emitting devices grown over the facet-initiated epitaxial lateral overgrowth substrates, the first nitride-based semiconductor laser emitting device has the lowest initial threshold current

density, and the second nitride-based semiconductor laser emitting device has the second lowest initial threshold current density. If the nitride-based semiconductor laser emitting devices are grown over the facet-initiated epitaxial lateral overgrowth substrates, then the Si-undoped active layer obtains the lowest initial threshold current density. Further, the first to third nitride-based semiconductor laser emitting devices grown over the facet-initiated epitaxial lateral overgrowth substrates are free from any deterioration in performance. The fourth and fifth nitride-based semiconductor laser emitting devices grown over the epitaxial lateral overgrowth substrates and having the Si-undoped active layer and the Si-doped active layer of $1 \times 10^{18} \text{ cm}^{-3}$ are also free from any deterioration in performance. Only the sixth nitride-based semiconductor laser emitting device grown over the epitaxial lateral overgrowth substrate and having the Si-doped active layer of $5 \times 10^{18} \text{ cm}^{-3}$ shows a slight deterioration, for example, a slight voltage raise.--.

Page 18, replace the paragraph, beginning on line 9, as follows:

--The dislocation core causes the non-photo-luminescent recombination of carriers. In order to suppress the non-photo-luminescent recombination of carriers, it is effective to increase the impurity concentration of the active layer to shorten the carrier diffusion length thereby suppressing carriers from flowing into the dislocation cores. It has been known that

if the impurity concentration is not less than $1 \times 10^{19} \text{ cm}^{-3}$, then Auger re-combination as the non-photo-luminescent re-combination of carriers frequently appears.--;

replace the paragraph, beginning on line 24, bridging pages 18 and 19, as follows:

--If the active layer comprises a single layered structure of a thickness of not less than 10 nanometers in place of the quantum well structure, the reduction of the Si-impurity concentration into less than $1 \times 10^{18} \text{ cm}^{-3}$ provides a smaller effect for improving the life-time than when the active layer comprises the quantum well structure. If the single layered structure of the active layer has a thickness of less than 10 nanometers, then the quantum effect possessed by the quantum well structure appears, wherein the state density has an abrupt rising edge which increases an optical gain and decreases the threshold current density value, whereby the temperature-dependent characteristics are improved. In this case, the reduction of the S-impurity concentration into less than $1 \times 10^{18} \text{ cm}^{-3}$ provides a remarkable effect of improving the life-time as in case of the quantum well active layer.--.

Page 19, replace the paragraph, beginning on line 13, as follows:

--The following is one of the reasons why the effect of improving the life-time is less remarkable if the active layer comprises a thick single layered structure of the thickness of

more than 10 nanometers in place of the quantum well structure and if the Si-impurity concentration is less than $1 \times 10^{18} \text{ cm}^{-3}$. The reduction in the Si-impurity concentration of the thick single layered active layer increases the series resistance, whereby the heat generation is increased. The increase in the heat generation causes that even if the Si-impurity concentration is low, then the dislocations are likely to extend and move.--.

Page 20, replace the paragraph, beginning on line 8, as follows:

--The first present invention provides a nitride based semiconductor photo-luminescent device having an active layer having a quantum well structure, the active layer having both at least a high dislocation density region and at least a low dislocation density region lower in dislocation density than the high dislocation density region, wherein the low dislocation density region includes a current injection region into which a current is injected, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration.--;

replace the paragraph, beginning on line 16, as follows:

--Since the low dislocation density region includes a current injection region into which a current is injected, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration, then the Auger recombination is suppressed and also the extension and move of the high dislocation density

region into the current injection region in the low dislocation density region are suppressed, whereby the device life-time under the high temperature and high output conditions is remarkably and greatly improved.--.

Page 21, replace the paragraph, beginning on line 15, as follows:

--Since the dislocation density of the current injection region is not more than one tenth of the dislocation density of the high dislocation density region, and further the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration, then the effect is obtained for suppressing the dislocations from the extension and move from the high density dislocation region to the low dislocation density region, particularly into the current injection region.--.

Page 22, replace the paragraph, beginning on line 22, bridging pages 22 and 23, as follows:

--Since a higher dislocation density region having a dislocation density of not less than ten times of a dislocation density of the current injection region is present in a peripheral region within a distance of 5 micrometers from the current injection region, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration, then the effect is obtained for suppressing the dislocations from the extension and move from the high density dislocation region to the low dislocation density region, particularly into the current injection region.-

Page 24, replace the paragraph, beginning on line 7, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and Si-doped potential barrier layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 11, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ and undoped potential barrier layers.--;

replace the paragraph, beginning on line 15, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ and Si-doped potential barrier layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 20, bridging pages 24 and 25, as follows:

--The second present invention provides a nitride based semiconductor photo-luminescent device having an active layer over an epitaxial lateral overgrowth substrate having a dielectric mask pattern with a window region, the active layer having both at least a high dislocation density region positioned over the window region and at least a low dislocation density region positioned over the dielectric mask pattern, and the low dislocation density region being lower in dislocation density than the high dislocation density region, wherein the low dislocation density region includes a current injection region into which a current is injected, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration.--.

Page 27, replace the paragraph, beginning on line 10, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and Si-doped potential barrier layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 14, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity

concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ and undoped potential barrier layers.--;

replace the paragraph, beginning on line 18, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ and Si-doped potential barrier layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 23, bridging pages 27 and 28, as follows:

--The third present invention provides a nitride based semiconductor photo-luminescent device having an active layer over a mask-less epitaxial lateral overgrowth substrate having a stripe-shaped nitride based semiconductor pattern with a window region, the active layer having both at least a high dislocation density region positioned over the stripe-shaped nitride based semiconductor pattern and at least a low dislocation density region positioned over the window region, and the low dislocation density region being lower in dislocation density than the high dislocation density region, wherein the low dislocation density region includes a current injection region into which a current is injected, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration.--.

Page 30, replace the paragraph, beginning on line 10, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and Si-doped potential barrier layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 14, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ and undoped potential barrier layers.--;

replace the paragraph, beginning on line 18, as follows:

--It is also preferable that the active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ and Si-doped potential barrier layers having an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$.--.

Page 34, replace the paragraph, beginning on line 20, bridging pages 34 and 35, as follows:

--As compared to the above first and second types novel devices, third to sixth devices were also prepared. The above first type device has the undoped active region and has the silicon dioxide mask pattern width of 10 micrometers, wherein the quantum well layers and the potential barrier layers are undoped. The above second type device has the undoped active region and has the silicon dioxide mask pattern width of 25 micrometers. The third to sixth types devices have the Si-doped active layers. The third type device has the silicon dioxide mask pattern width of 10 micrometers and the Si-impurity concentration of 1×10^{18} cm⁻³ for each of the quantum well layers and the potential barrier layers in the active layer. The fourth type device has the silicon dioxide mask pattern width of 25 micrometers and the Si-impurity concentration of 1×10^{18} cm⁻³ for each of the quantum well layers and the potential barrier layers in the active layer. The fifth type device has the silicon dioxide mask pattern width of 10 micrometers and the Si-impurity concentration of 5×10^{18} cm⁻³ for each of the quantum well layers and the potential barrier layers in the active layer. The sixth type device has the silicon dioxide mask pattern width of 25 micrometers and the Si-impurity concentration of 5×10^{18} cm⁻³ for each of the quantum well layers and the potential barrier layers in the active layer.--.

Page 37, replace lines 18 through 20, as follows:

--Third sample: epitaxial lateral overgrowth;

silicon dioxide mask width of 25 micrometers; and
Si-doped active layer of $1 \times 10^{18} \text{ cm}^{-3}$.;

replace lines 21 through 23 as follows:

--Fourth sample: epitaxial lateral overgrowth;
silicon dioxide mask width of 10 micrometers; and
Si-doped active layer of $1 \times 10^{18} \text{ cm}^{-3}$.--.

Page 37, replace line 24 and lines 1 and 2 of page 38,
as follows:

--Fifth sample: epitaxial lateral overgrowth;
silicon dioxide mask width of 25 micrometers; and
Si-doped active layer of $5 \times 10^{18} \text{ cm}^{-3}$.--.

Page 38, replace lines 3 through 5, as follows:

--Sixth sample: epitaxial lateral overgrowth;
silicon dioxide mask width of 10 micrometers; and
Si-doped active layer of $5 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 7, as
follows:

--There was no large difference in the initial
threshold current density in the above first to sixth samples.
The fifth sample having the mask width of 10 micrometers and the
Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$ for the active layer
showed a remarkable deterioration, wherein the laser emission is
discontinued before 100 hours operation, whilst the remaining
first to fourth and sixth samples showed almost no
deteriorations. The fifth sample was observed in dislocation by

the transmission electron microscope. It was confirmed that the dislocations in the high dislocation density region extend to the low dislocation density region.--.

Page 39, replace the paragraph, beginning on line 5, as follows:

--In accordance with this embodiment, if the high dislocation density region 116 is present within 5 micrometers from the current injection region of the active layer, the low impurity concentration of not more than $1 \times 10^{18} \text{ cm}^{-3}$ of the active layer provides a remarkable effect of suppressing the dislocation motion and extension. If the active layer is undoped or the silicon dioxide mask width is not less than 25 micrometers, then the movement or extension of the dislocation from the high dislocation density region to the low dislocation density region is suppressed, the life-time of the laser device under the high temperature and high output conditions is remarkably and greatly improved.--.

Page 40, replace the paragraph, beginning on line 9, as follows:

--The impurity doping into the active layer means the impurity doping into either any one or both of the quantum well layers and the potential barrier layers. Namely, all of the quantum well layers and the potential barrier layers in the active layer are undoped or Si-doped at an impurity concentration

of less than $1 \times 10^{18} \text{ cm}^{-3}$ in order to realize the long-life-time of the device.--;

replace the paragraph, beginning on line 15, as follows:

--In place of the multiple quantum well active layer, the single layered InGaN active layer is used for a further comparative examination. If the thickness of the single layered InGaN active layer is not less than 10 nanometers, then the low impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ provides no remarkable effect of improving the life-time as compared to the multiple quantum well active layer. If the thickness of the single layered InGaN active layer is less than 10 nanometers to form a single quantum well layer for causing quantum effects, then the low impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ provides such the remarkable effect of improving the life-time as the multiple quantum well active layer.--.

Page 41, replace the paragraph, beginning on line 1, as follows:

--The following is one of the reasons why the effect of improving the life-time is less remarkable if the InGaN active layer comprises a thick single layered structure of the thickness of more than 10 nanometers in place of the quantum well structure and if the Si-impurity concentration is less than $1 \times 10^{18} \text{ cm}^{-3}$. The reduction in the Si-impurity concentration of the thick single layered active layer increases the series resistance,

whereby the heat generation is increased. The increase in the heat generation causes that even if the Si-impurity concentration is low, then the dislocations are likely to extend and move.--.

Page 42, replace the paragraph, beginning on line 8, as follows:

--In accordance with the novel nitride based semiconductor photo-luminescent device, the active layer has the high dislocation density region and the low dislocation density region which has the current injection layer, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration to suppress the Auger re-combination and also suppress the extension and movement of the dislocations from the high dislocation density region to the current injection region in the low dislocation density region, whereby the life-time of the device under the high temperature and high output conditions is remarkably and greatly improved.--.

Page 47, replace the paragraph, beginning on line 22, bridging pages 47 and 48, as follows:

--As compared to the above first and second types novel devices, third to sixth types devices were also prepared. The above first type device has the undoped active region and has the window region width of 10 micrometers, wherein the quantum well layers and the potential barrier layers are undoped. The above second type device has the undoped active region and has the window region width of 25 micrometers. The third to sixth types

devices have the Si-doped active layers. The third type device has the window region width of 10 micrometers and the Si-impurity concentration of $1 \times 10^{18} \text{ cm}^{-3}$ for each of the quantum well layers and the potential barrier layers in the active layer. The fourth type device has the window region width of 25 micrometers and the Si-impurity concentration of $1 \times 10^{18} \text{ cm}^{-3}$ for each of the quantum well layers and the potential barrier layers in the active layer. The fifth type device has the window region width of 10 micrometers and the Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$ for each of the quantum well layers and the potential barrier layers in the active layer. The sixth type device has the window region width of 25 micrometers and the Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$ for each of the quantum of well layers and the potential barrier layers in the active layer.--.

Page 50, replace lines 20 through 23, as follows:

--Third sample: mask-less epitaxial lateral overgrowth; silicon dioxide mask width of 25 micrometers; and Si-doped active layer of $1 \times 10^{18} \text{ cm}^{-3}$.--;

replace lines 24 and 25 and line 1 of page 51, as follows:

--Fourth sample: mask-less epitaxial lateral overgrowth; silicon dioxide mask width of 10 micrometers; and Si-doped active layer of $x 1 10^{18} \text{ cm}^{-3}$.--.

Page 51, replace lines 2 through 7, as follows:

--Fifth sample: mask-less epitaxial lateral overgrowth; silicon dioxide mask width of 25 micrometers; and Si-doped active layer of $5 \times 10^{18} \text{ cm}^{-3}$.

Sixth sample: mask-less epitaxial lateral overgrowth; Silicon dioxide mask width of 10 micrometers; and Si-doped active layer of $5 \times 10^{18} \text{ cm}^{-3}$.--;

replace the paragraph, beginning on line 9, as follows:

--There was no large difference in the initial threshold current density in the above first to sixth samples. The fifth sample having the mask width of 10 micrometers and the Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$ for the active layer showed a remarkable deterioration, wherein the laser emission is discontinued before 100 hours operation, whilst the remaining first to fourth and sixth samples showed almost no deteriorations. The fifth sample was observed in dislocation by the transmission electron microscope. It was confirmed that the dislocations in the high dislocation density region extend to the low dislocation density region.--.

Page 52, replace the paragraph, beginning on line 7, as follows:

--In accordance with this embodiment, if the high dislocation density region 116 is present within 5 micrometers from the current injection region of the active layer, the low impurity concentration of not more than $1 \times 10^{18} \text{ cm}^{-3}$ of the

active layer provides a remarkable effect of suppressing the dislocation motion and extension. If the active layer is undoped or the silicon dioxide mask width is not less than 25 micrometers, then the movement or extension of the dislocation from the high dislocation density region to the low dislocation density region is suppressed, the life-time of the laser device under the high temperature and high output conditions is remarkably and greatly improved.--.

Page 53, replace the paragraph, beginning on line 11, as follows:

--The impurity doping into the active layer means the impurity doping into either any one or both of the quantum well layers and the potential barrier layers. Namely, all of the quantum well layers and the potential barrier layers in the active layer are undoped or Si-doped at an impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ in order to realize the long-life-time of the device.--;

replace the paragraph, beginning on line 17, bridging pages 53 and 54, as follows:

--In place of the multiple quantum well active layer, the single layered InGaN active layer is used for a further comparative examination. If the thickness of the single layered InGaN active layer is not less than 10 nanometers, then the low impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ provides no remarkable effect of improving the life-time as compared to the

multiple quantum well active layer. If the thickness of the single layered InGaN active layer is less than 10 nanometers to form a single quantum well layer for causing quantum effects, then the low impurity concentration of less than $1 \times 10^{18} \text{ cm}^{-3}$ provides such the remarkable effect of improving the life-time as the multiple quantum well active layer.--.

Page 54, replace the paragraph, beginning on line 3, as follows:

--The following is one of the reasons why the effect of improving the life-time is less remarkable if the InGaN active layer comprises a thick single layered structure of the thickness of more than 10 nanometers in place of the quantum well structure and if the Si-impurity concentration is less than $1 \times 10^{18} \text{ cm}^{-3}$. The reduction in the Si-impurity concentration of the thick single layered active layer increases the series resistance, whereby the heat generation is increased. The increase in the heat generation causes that even if the Si-impurity concentration is low, then the dislocations are likely to extend and move.--.

Page 55, replace the paragraph, beginning on line 8, as follows:

--In accordance with the novel nitride based semiconductor photo-luminescent device, the active layer has the high dislocation density region and the low dislocation density region which has the current injection layer, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration to

suppress the Auger re-combination and also suppress the extension and movement of the dislocations from the high dislocation density region to the current injection region in the low dislocation density region, whereby the life-time of the device under the high temperature and high output conditions is remarkably and greatly improved.--.

Page 59, replace the paragraph, beginning on line 16, as follows:

--As compared to the above first type device, the second and third types devices were also prepared. The above first type device has the undoped active region, wherein the quantum well layers and the potential barrier layers are undoped. The second type device has the Si-doped active region with the Si-impurity concentration of $1 \times 10^{18} \text{ cm}^{-3}$ for each of the quantum well layers and the potential barrier layers. The second type device has the Si-doped active region with the Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$ for each of the quantum well layers and the potential barrier layers.--.

Page 61, replace the paragraph, beginning on line 11, as follows:

--There was no large difference in the initial threshold current density in the above first to third devices. The third type device having the Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$ for the active layer showed a remarkable deterioration, wherein the laser emission is discontinued before 100 hours

operation, whilst the remaining first and second type devivces showed almost no deteriorations. The third type device was observed in dislocation by the transmission electron microscope. It was confirmed that the dislocations in the high dislocation density region extend to the low dislocation density region.--;

replace the paragraph, beginning on line 20, bridging pages 61 and 62, as follows:

--Before this exmination, the high dislocation density region of each of the above first to third type devices was distanced by about 3 micrometers from the current injection region of the active layer. After the examination, the high dislocation density region of the third type device only extends to the current injection region of the active layer. After the examination, the high dislocation density region of each of the above first and second type devices remained distanced by about 3 micrometers from the current injection region of the active layer. Namely, the distribution of the dislocation density remained unchanged for the first and second type devices having the undoped barrier layers and the Si-impurity concentration of $5 \times 10^{18} \text{ cm}^{-3}$.--.

Page 62, replace the paragraph, beginning on line 7, as follows:

--In accordance with this embodiment, if the high dislocation density region 116 is present within 5 micrometers from the current injection region of the active layer, the low

impurity concentration of not more than $1 \times 10^{18} \text{ cm}^{-3}$ of the active layer provides a remarkable effect of suppressing the dislocation motion and extension. If the active layer is undoped, then the movement or extension of the dislocation from the high dislocation density region to the low dislocation density region is suppressed, the life-time of the laser device under the high temperature and high output conditions is remarkably and greatly improved.--.

Page 63, replace the paragraph, beginning on line 5, as follows:

--In accordance with the novel nitride based semiconductor photo-luminescent device, the active layer has the high dislocation density region and the low dislocation density region which has the current injection layer, and the active layer is less than $1 \times 10^{18} \text{ cm}^{-3}$ in impurity concentration to suppress the Auger re-combination and also suppress the extension and movement of the dislocations from the high dislocation density region to the current injection region in the low dislocation density region, whereby the life-time of the device under the high temperature and high output conditions is remarkably and greatly improved.--.

IN THE CLAIMS:

Amend claim 1 as follows:

A1
--1. (amended) A nitride based semiconductor photo-luminescent device having an active layer, said active layer